



**BARCLAYS OFFICIAL CALIFORNIA CODE  
OF REGULATIONS  
TITLE 13. MOTOR VEHICLES  
DIVISION 3. AIR RESOURCES BOARD  
CHAPTER 1. MOTOR VEHICLE POLLUTION  
CONTROL DEVICES  
ARTICLE 1. GENERAL PROVISIONS**

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s 1956.8. Exhaust Emissions Standards and Test  
Procedures -1985 and Subsequent Model Heavy-  
Duty Engines and Vehicles.

(a)(1) The exhaust emissions (i) from new 1985  
through 2003 model heavy-duty diesel engines  
(except methanol-fueled engines), and heavy-duty  
natural-gas-fueled and liquefied-petroleum-gas-  
fueled engines derived from diesel-cycle engines, and  
(ii) from all new 1993 through 2003 model heavy-  
duty methanol-fueled, diesel engines, except in all  
cases engines used in medium-duty vehicles, shall  
not exceed:

Exhaust Emission Standards					
For 1985-2003 Model Heavy-Duty Engines Other than Urban Bus Engines					
(grams per brake horsepower-hour [g/bhp-hr])					
Model Year	Total	Optional	Carbon	Oxides of	
	Hydrocarbons	Non-metha- ne Hydrocarb- ons [FNA]		Nitrogen	Particulates
1985-1986	1.3		15.5	5.1	-
1987 [FNB]	1.3		15.5	5.1	-
1988-1989	1.3		15.5	6.0	0.60
1990	1.3	1.2	15.5	6.0	0.60
1991-1993 [FNC]	1.3	1.2	15.5	5.0	0.25 [FND]
1994-1997	1.3	1.2	15.5	5.0	0.10 [FND]
1995-1997 [FNE]	1.3	1.2	15.5	3.5 to 0.5	0.10
1998-2003 [FNF]	1.3	1.2	15.5	4.0 [FNG], [FNH]	0.10 [FNG]
1998-2003 [FNE]	1.3	1.2	15.5	2.5 to 0.5	0.10
				[FNI]	

[FNC] For methanol-fueled engines, these standards  
shall be applicable beginning with the 1993 model year.

[FND] Emissions averaging may be used to meet this  
standard. Averaging is restricted to within each useful life  
subclass and is applicable only through the 1995 model  
year. Emissions from engines used in urban buses shall  
not be included in the averaging program.

[FNE] These are optional standards. A manufacturer  
may elect to certify to an optional NOx standard between  
the values, inclusive, by 0.5 grams per brake horsepower-  
hour increments. Engines certified to any of these  
optional NOx standards are not eligible for participation

[FNA] The total or optional non-methane hydrocarbon  
standards apply to petroleum-fueled, natural-gas-fueled  
and liquefied-petroleum-gas-fueled engines. The Organic  
Material Hydrocarbon Equivalent, or OMHCE, standards  
apply to methanol-fueled engines.

[FNB] As an option a manufacturer may elect to certify  
to the 1988 model-year emission standards one year early,  
for the 1987 model year.

in any averaging, banking or trading programs described in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" incorporated by reference in (b), below.

[FNF] These are mandatory standards.

[FNG] Engines of 1998 through 2003 model years may be eligible to generate banking credits based on these standards according to the requirements of the averaging, banking and trading programs described in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" incorporated by reference in (b), below.

[FNH] May be used as the certification standard for the higher emitting fueling mode of an engine certified under the dual fueling mode certification process of (a)(3)(4), below.

[FNI] May be used as the certification standard for the lower emitting fueling mode of an engine certified under the dual fueling mode certification process of (a)(3)(4), below.

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(2)(A) The exhaust emissions from new 2004 and subsequent model heavy-duty diesel engines, heavy-duty natural gas-fueled and liquefied-petroleum-gas-fueled engines derived from diesel-cycle engines, and heavy-duty methanol-fueled diesel engines, and the optional, reduced-emission standards for 2002 and subsequent model engines produced beginning October 1, 2002, except in all cases engines used in medium-duty vehicles, shall not exceed:

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Exhaust Emission Standards for 2004 and Subsequent  
Model Heavy-Duty Engines,  
and Optional, Reduced Emission Standards for 2002 and  
Subsequent Model Heavy-  
Duty Engines Produced Beginning October 1, 2002,  
Other than Urban Bus Engines  
(grams per brake horsepower-hour [g/bhp-hr])

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Optional

Model Year	Oxides of Nitrogen Plus Non-methane Hydrocarbons		Oxides of Nitrogen	Non-methane Hydrocarbons		Carbon Particulates
	[FNA], C-, E, J% n/a	[FNB, C, E, J] [FNA, D, F]		Monoxide		
2004-2006 [FNG] October 1, 2002-2006	2.4	2.5	n/a	n/a	15.5	0.10 [FNC]
	n/a	1.8 to 0.3	n/a	n/a	15.5	0.03 to 0.01 [FNG]
2007 and subsequent	n/a	n/a	0.2 [FNI]	0.14	15.5	0.01 [FNK]

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[FNA] This is the standard for the arithmetic sum of the oxides of nitrogen exhaust component certification value and the non-methane hydrocarbon exhaust component certification value, without individual restriction on the individual component values.

[FNB] This is the standard for the arithmetic sum of the

oxides of nitrogen exhaust component certification value and the non-methane hydrocarbon exhaust component certification value, with the non-methane hydrocarbon individual component value not to exceed 0.5 g/bhp-hr.

[FNC] For 2004 through 2006 model years, emissions averaging may be used to meet this standard. Averaging must be based on the requirements of the averaging, banking and trading programs described in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines

and Vehicles" incorporated by reference in section 1956.8(b), below.

[FND] A manufacturer may elect to certify to an optional reduced-emission NO<sub>x</sub>+NMHC standard between the values, inclusive, by 0.3 grams per brake horsepower-hour increments. Engines certified to any of these optional reduced-emission NO<sub>x</sub> standards are not eligible for participation in any averaging, banking or trading programs described in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" incorporated by reference in section 1956.8(b), below.

[FNE] May be used as the certification standard for the higher emitting fueling mode of an engine certified under the dual fueling mode certification process of section 1956.8(a)(4), below.

[FNF] May be used as the certification standard for the lower emitting fueling mode of an engine certified under the dual fueling mode certification process of section 1956.8(a)(4), below.

[FNG] A manufacturer may elect to certify to an optional reduced-emission PM standard between the specified values, inclusive, by 0.01 grams per brake horsepower-hour increments. Engines certified to any of these optional reduced-emission PM standards are not eligible for participation in any averaging, banking or trading programs described in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" incorporated by reference in section 1956.8(b), below.

[FNH] Engine manufacturers subject to the Heavy-Duty Diesel Engine Settlement Agreements (Settlement Agreements) [FN1] must produce engines in compliance with the requirements contained in their respective Settlement Agreement. Most engine manufacturers subject to the Settlement Agreements are required to manufacture engines meeting the exhaust emission standards for 2004 and subsequent model years engines beginning October 1, 2002.

[FNI] A manufacturer may elect to include any or all of its heavy-duty diesel engine families in any or all of the NO<sub>x</sub> emissions averaging, banking, or trading programs for heavy-duty diesel engines, within the restrictions described in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" incorporated in section 1956.8 (b), below. If the manufacturer elects to

include engine families in any of these programs, the NO<sub>x</sub> family emission limit (FEL) may not exceed the following FEL caps: 2.00 grams per brake horsepower-hour (0.75 grams per megajoule) for model years before 2010; 0.50 grams per brake horsepower-hour (0.19 grams per megajoule) for model years 2010 and later. The FEL cap applies whether credits for the engine family are derived from averaging, banking, or trading programs.

[FNJ] For 2007 through 2009 model years, a manufacturer may use these emission standards in accordance with section 1956.8 (a)(2)(B). A manufacturer may elect to include any or all of its heavy-duty diesel engine families in any or all of the NO<sub>x</sub> plus NMHC emissions averaging, banking, or trading programs for heavy-duty diesel engines, within the restrictions described in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" incorporated in section 1956.8 (b), below. If the manufacturer elects to include engine families in any of these programs, the NO<sub>x</sub> family emission limit (FEL) may not exceed the following FEL caps: 2.00 grams per brake horsepower-hour (0.75 grams per megajoule) for model years. The FEL cap applies whether credits for the engine family are derived from averaging, banking, or trading programs.

[FNK] A manufacturer may elect to include any or all of its heavy-duty diesel engine families in any or all of the particulate averaging, banking, or trading programs for heavy-duty diesel engines, within the restrictions described in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" incorporated by reference in section 1956.8 (b), below. The particulate FEL for each engine family a manufacturer elects to include in any of these programs may not exceed an FEL cap of 0.02 grams per brake horsepower-hour (0.0075 grams per megajoule). The FEL cap applies whether credits for the engine family are derived from averaging, banking, or trading programs.

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[FN1] Seven of the largest heavy-duty diesel engine manufacturers will be implementing measures to reduce emissions beginning October 1, 2002, to meet the requirements of the Heavy-Duty Diesel Engine Settlement Agreements reached with the ARB. The Heavy-Duty Diesel Engine Settlements were agreements reached in response to lawsuits brought by the United States Environmental Protection Agency and violations alleged by the ARB pertaining to excess in-use emissions caused by the use of defeat devices and unacceptable algorithms. Navistar signed its Settlement Agreement on October 22,

1998. Cummins, Detroit Diesel Corporation, Caterpillar, Volvo, Mack and Renault signed their Settlement Agreements on December 15, 1998.

(B) Phase-in Options.

(i) Early NOx compliant engines. For model years 2007, 2008, and 2009, a manufacturer may, at their option, certify one or more of their engine families to the combined NOx plus NMHC standard or FEL applicable to model year 2006 engines under section 1956.8 (a)(2)(A), in lieu of the separate NOx and NMHC standards or FELs applicable to the 2007 and subsequent model years, specified in section 1956.8 (a)(2)(A). Each engine certified under this phase-in option must comply with all other emission requirements applicable to model year 2007 engines. To qualify for this option, a manufacturer must satisfy the U.S.- directed production requirement of certifying no more than 50 percent of engines to the NOx plus NMHC standards or FELs applicable to 2006 engines, as specified in [40 Code of Federal Regulations, part 86, section 86.007- 11\(g\)\(1\)](#), as adopted January 18, 2001. In addition, a manufacturer may reduce the quantity of engines that are required to be

Model Year	Formaldehyde (g/bhp-hr)
1993-1995.....	0.10
1996 and subsequent....	0.05

(4) An engine family whose design allows engine operation in either of two distinct alternative fueling modes, where each fueling mode is characterized by use of one fuel or a combination of two fuels and by significantly different emission levels under each mode, may certify to a different NOx or NOx plus NMHC (as applicable depending on model year) standard for each fueling mode, provided it meets the following requirements:

(A) The NOx or NOx plus NMHC certification standard used for operation under the higher emitting fueling mode must be one of the standards denoted by footnote H in paragraph (a)(1) and footnote E in paragraph (a)(2).

(B) The NOx or NOx plus NMHC certification standard used for operation under the lower emitting fueling mode must be one of the reduced-emission standards denoted by footnote I in paragraph (a)(1) and footnote F in paragraph

phased-in using the early certification credit program specified in [40 Code of Federal Regulations, part 86, section 86.007-11\(g\)\(2\)](#), as adopted January 18, 2001, and the "Blue Sky" engine program specified in [40 Code of Federal Regulations, part 86, section 86.007-11\(g\)\(4\)](#), as adopted January 18, 2001.

(ii) Early PM compliant engines. A manufacturer certifying engines to the 2007 and subsequent model year PM standard listed in section 1956.8(a)(2)(A) (without using credits, as determined in any averaging, banking, or trading program described in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," to comply with the standards) before model year 2007 may reduce the number of engines that are required to meet the 2007 and subsequent model year PM standard listed in section 1956.8(a)(2)(A) in model year 2007, 2008 and/or 2009. To qualify for this option, a manufacturer must satisfy the PM emission requirements pursuant to the methods detailed in [40 Code of Federal Regulations, part 86, section 86.007-11 \(g\)\(2\)\(ii\)](#), as adopted January 18, 2001.

(3) Formaldehyde exhaust emissions from new 1993 and subsequent model methanol-fueled diesel engines, shall not exceed:

(a)(2).

(C) The engine family is not used to participate in any manufacturer's averaging, banking or trading program.

(D) The engine family meets all other emission requirements contained in this section.

(E) The higher emitting fueling mode must be intended only for fail-safe vehicle operation when a malfunction or inadvertent fuel depletion precludes operation in the lower emitting fueling mode, as evidenced by a significantly reduced horsepower versus engine speed curve when operating in the higher emitting fueling mode when compared to the similar curve for the lower emitting fueling mode.

(5) No crankcase emissions shall be discharged directly into the ambient atmosphere from any new 2007 or later

model year diesel heavy-duty diesel engine, with the following exception: heavy-duty diesel engines equipped with turbochargers, pumps, blowers, or superchargers for air induction may discharge crankcase emissions to the ambient atmosphere if the emissions are added to the exhaust emissions (either physically or mathematically) during all emission testing. Manufacturers using this exception must manufacture the engines so that all crankcase emissions can be routed into a dilution tunnel (or other sampling system approved in advance by the Executive Officer), and must account for deterioration in crankcase emissions when determining exhaust deterioration factors. For the purpose of section 1956.8(a)(2), crankcase emissions that are routed to the exhaust upstream of exhaust aftertreatment during all operation are not considered to be "discharged directly into the ambient atmosphere."

(b) The test procedures for determining compliance with standards applicable to 1985 and subsequent model heavy-duty diesel engines and vehicles and the requirements for participation in the averaging, banking and trading programs, are set forth in the "California Exhaust Emission Standards and Test Procedures for 1985 through 2003 Model Heavy-Duty Diesel Engines

and Vehicles," adopted April 8, 1985, as last amended December 12, 2002, the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," adopted December 12, 2002, and the "California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes," adopted October 24, 2002, which are incorporated by reference herein.

(c)(1)(A) The exhaust emissions from (i) new 1987 through 2004 model heavy-duty Otto-cycle engines (except methanol-fueled engines and except heavy-duty Otto-cycle natural-gas-fueled and liquified-petroleum-gas-fueled Otto-cycle engines derived from diesel-cycle engines) and (ii) from new 1993 through 2004 model heavy-duty methanol-fueled Otto-cycle engines (except in all cases engines used in medium-duty vehicles) shall not exceed:

Exhaust Emission Standards for Heavy-Duty Otto-Cycle Engines (grams per brake horsepower-hour or g/bhp-hr)					
Model Year	Total		Carbon	Oxides of	
	Hydrocarbons or OMHCE [FNA] #Hydrocarbons	Optional Non-Methane Monoxide [FNB]			
1987 [FNC]	[FNA]				
	1.1 [FND]		14.4 [FND]	10.6	
1988-1989	1.9 [FNE]		37.1 [FNE]	10.6	
	1.1 [FND]		14.4 [FND]	6.0	
1990	1.9 [FNE]		37.1 [FNE]	6.0	
	1.1	0.9 [FND]	14.4 [FND]	6.0	
1991-1994	1.9 [FNE]	1.7 [FNE]	37.1 [FNE]	6.0	
	1.1 [FND]	0.9 [FND]	14.4 [FND]	5.0	
1995-1997	1.9 [FNE]	1.7 [FNE]	37.1 [FNE]	5.0	
	1.9 [FNE]	1.7 [FNE]	37.1 [FNE]	2.5 to 5.0 [FNF]	
1998-2003 [FNG]	1.9 [FNE]	1.7 [FNE]	37.1 [FNE]	4.0	
	1.9 [FNE]	1.7 [FNE]	37.1 [FNE]	1.5 to 0.5 [FNF]	

	Non-Methane Hydrocarbons plus Oxides of Nitrogen (NMHC + NOx)	Carbon Monoxide
2004 [FNG]	2.4 g/bph-hr; or 2.5 with 0.5 g/bhp-hr cap on NMHC	37.1

[FNA] The total or optional non-methane hydrocarbon standards apply to petroleum-fueled, natural-gas-fueled and liquefied-petroleum-gas-fueled engines and methanol-fueled engines beginning in 2004. The Organic Material Hydrocarbon Equivalent, or OMHCE, standards apply to 1987 through 2003 methanol-fueled engines.

[FNB] Prior to the 2002 model year, carbon monoxide emissions from engines utilizing exhaust after treatment technology shall also not exceed 0.5 percent of the exhaust gas flow at curb idle.

[FNC] Manufacturers with existing heavy-duty Otto-cycle engines certified to the California 1986 steady-state emission standards and test procedures may as an option certify those engines, for the 1987 model year only, in accordance with the standards and test procedures for 1986 heavy-duty Otto-cycle engines established in Section 1956.7.

[FND] These standards are applicable to Otto-cycle engines intended for use in all heavy-duty vehicles.

[FNE] Applicable to heavy-duty Otto-cycle engines intended for use only in vehicles with a gross vehicle weight rating greater than 14,000 pounds. Also, as an option, a manufacturer may certify one or more 1988 through 1994 model Otto-cycle heavy-duty engine configurations intended for use in all heavy-duty vehicles

to these emission standards, provided that the total model-year sales of such configuration(s) being certified to these emission standards represent no more than 5 percent of total model-year sales of all Otto-cycle heavy-duty engines intended for use in vehicles with a Gross Vehicle Weight Rating of up to 14,000 pounds by the manufacturer.

[FNF] These are optional standards and apply to all heavy-duty engines intended for use only in vehicles with a gross vehicle weight rating greater than 14,000 pounds. A manufacturer may elect to certify to an optional standard between the values, inclusive, by 0.5 grams per brake horsepower-hour increments.

[FNG] A manufacturer may request to certify to Option 1 or Option 2 federal NMHC + NOx standards as set forth in [40 CFR s 86.005-10\(f\)](#), as adopted October 6, 2000.

(B) The exhaust emissions from new 2005 and subsequent model heavy-duty Otto-cycle engines, except for Otto-cycle medium- and heavy-duty engines subject to the alternative standards in 40 CFR s86,005-10(f), shall not exceed:

California Emission Standards for 2005 and Subsequent  
Model Heavy-Duty Otto-  
Cycle Engines [FNA] (in g/bhp-hr)

Model Year	Emission Category	NMHC + NOx	NMHC	NOx	CO [FNF]	HCHO	PM
Standards for Heavy-Duty Otto-Cycle Engines Used In Incomplete Medium-Duty Vehicles 8,501 to 14,000 pounds GVW [FNB]							

2005 through 2007	ULEV	1.0 [FNC,E]	n/a	n/a	14.4	0.05	n/a
	SULEV	0.5	n/a	n/a	7.2	0.025	n/a

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2008 and subsequent	ULEV	n/a	0.14 [FNE]	0.20 [FNE]	14.4	0.01	0.01
	SULEV	n/a	0.07 [FNE]	0.10 [FNE]	7.2	0.005	0.005

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Standards for Heavy-Duty Otto-Cycle Engines Used In  
Heavy-Duty Vehicles Over  
14,000 pounds GVW

2005 through 2007	n/a	1.0 [FNC,E]	n/a	n/a	37.1	0.05 [FND]	n/a
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2008 and subsequent	n/a	n/a	0.14 [FNE]	0.20 [FNE]	14.4	0.01	0.01
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must meet the standard specified above.

[FND] This standard only applies to methanol-fueled Otto-cycle engines.

[FNA] These standards apply to petroleum-fueled, alcohol-fueled, liquefied petroleum gas-fueled and natural gas-fueled Otto-cycle engines.

[FNB] A manufacturer of engines used in incomplete medium-duty vehicles may choose to comply with these standards as an alternative to the primary emission standards and test procedures for complete vehicles specified in [section 1961, title 13, CCR](#). A manufacturer that chooses to comply with these optional heavy-duty engine standards and test procedures shall specify, in the Part I application for certification, an in-use compliance test procedure, as provided in [section 2139\(c\), title 13 CCR](#).

[FNC] A manufacturer may request to certify to the Option 1 or Option 2 federal NMHC + NOx standards as set forth in [40 CFR s 86.005-10\(f\)](#). However, for engines used in medium-duty vehicles, the formaldehyde level

[FNE] A manufacturer may elect to include any or all of its medium- and heavy-duty Otto-cycle engine families in any or all of the emissions ABT programs for HDEs, within the restrictions described in section I.15 of the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines," incorporated by reference in section 1956.8(d). For engine families certified to the Option 1 or 2 federal standards, the FEL must not exceed 1.5 g/bhp-hr. If a manufacturer elects to include engine families certified to the 2005 and subsequent model year standards, the NOx plus NMHC FEL must not exceed 1.0 g/bhp-hr. For engine families certified to the 2008 and subsequent model year standards, the FEL is the same as set forth in [40 CFR 86.008-10\(a\)\(1\)](#).

[FNF] Idle carbon monoxide: For all Otto-cycle heavy-duty engines utilizing aftertreatment technology, and not

certified to the on-board diagnostics requirements of section 1968, et seq, as applicable, the CO emissions shall not exceed 0.50 percent of exhaust gas flow at curb idle.

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Model Year	Formaldehyde (g/bhp-hr)
1993-1995.....	0.10
1996 and Subsequent....	0.05

(d) The test procedures for determining compliance with standards applicable to 1987 and subsequent model heavy-duty Otto-cycle engines and vehicles are set forth in the "California Exhaust Emission Standards and Test Procedures for 1987 through 2003 Model Heavy-Duty Otto-Cycle Engines and Vehicles," adopted April 25, 1986, as last amended December 27, 2000, the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines," adopted December 27, 2000, as last amended December 12, 2002, the "California Non-Methane Organic Gas Test Procedures," adopted July 12, 1991, as last amended July 30, 2002, and the "California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes," adopted October 24, 2002, which are incorporated by reference herein.

(e) A manufacturer may elect to certify complete heavy-duty vehicles of 14,000 pounds or less maximum gross vehicle weight rating as medium-duty vehicles under [section 1960.1](#) or [section 1961](#) of this chapter, in which event the heavy-duty emission standards and test procedures in this section shall not apply.

(f)(1) In 1985 and future years, the executive officer may authorize use of engines certified to meet federal emission standards, or which are demonstrated to meet appropriate federal emission standards, in up to a total of 100 heavy-duty vehicles, including otto-cycle and diesel heavy-duty vehicles, in any one calendar year when the executive officer has determined that no engine certified to meet California emission standards exists which is suitable for use in the vehicles.

Model Year	Carbon Monoxide	NMHC + NOx [FNB]	Particulates [FNC]
1995 [FND]	14.4	3.9	0.10

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(2) Formaldehyde exhaust emissions from new 1993 and subsequent model methanol-fueled otto cycle engines shall not exceed:

(2) In order to qualify for an exemption, the vehicle manufacturer shall submit, in writing, to the executive officer the justification for such exemption. The exemption request shall show that, due to circumstances beyond the control of the vehicle manufacturer, California certified engines are unavailable for use in the vehicle. The request shall further show that redesign or discontinuation of the vehicle will result in extreme cost penalties and disruption of business. In evaluating a request for an exemption, the executive officer shall consider all relevant factors, including the number of individual vehicles covered by the request and the anti-competitive effect, if any, of granting the request. If a request is denied, the executive officer shall state in writing the reasons for the denial.

(3) In the event the executive officer determines that an applicant may meet the criteria for an exemption under this subsection, but that granting the exemption will, together with previous exemptions granted, result in over 100 vehicles being permitted under this subsection to use non-California engines in heavy-duty vehicles in any one calendar year, the exemption may be granted only by the state board, under the criteria set forth herein.

(g) The exhaust emissions from new 1995 through 2003 model-year engines used in incomplete medium-duty vehicles or diesel engines used in medium-duty vehicles shall not exceed:

Exhaust Emission Standards [FNA] (grams per brake  
horsepower-hour, or g/bhp-  
hr)



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[FNA] This set of standards is optional. Manufacturers of engines used in incomplete medium-duty vehicles or diesel engines used in medium-duty vehicles from 8501-14,000 pounds, gross vehicle weight may choose to comply with these standards as a alternative to the primary emission standards and test procedures specified in [section 1960.1, Title 13, California Code of Regulations](#). Manufacturers that choose to comply with these optional heavy-duty standards and test procedures shall specify, in the application for certification, an in-use compliance test procedure, as provided in [section 2139\(c\), Title 13, California Code of Regulations](#).

[FNB] This standard is the sum of the individual non-methane hydrocarbon emissions and oxides of nitrogen emissions. For methanol-fueled engines, non-methane hydrocarbons shall mean organic material hydrocarbon equivalent.

[FNC] This standard shall only apply to diesel engines and vehicles.

[FND] In the 1995 model-year only, manufacturers may certify up to 50 percent of their medium-duty engines or vehicles to the applicable 1994 model-year standards and test procedures. For the 1995 through 1997 models, alternative in-use compliance is available for medium-

duty manufacturers. A manufacturer may use alternative in-use compliance for up to 100 percent of its fleet in the 1995 and 1996 model years and up to 50 percent of its fleet in the 1997 model year. The percentages shall be determined from the manufacturers' projected California sales of medium-duty vehicles. For engines certified to the standards and test procedures of this subsection, "alternative in-use compliance" shall consist of an allowance of 25 percent over the HC + NOx standard. In-use compliance testing shall be limited to vehicles or engines with less than 90,000 miles.

(h) The exhaust emissions from new:

(1) 1992 through 2004 model-year Otto-cycle engines used in incomplete medium-duty low-emission vehicles, ultra-low-emission vehicles, and super-ultra-low-emission vehicles; and

(2) 1992 and subsequent model diesel engines used in medium-duty low-emission vehicles, ultra-low-emission vehicles, and super-ultra-low-emission vehicles shall not exceed:

[Note: The following TABLE/FORM is too wide to be displayed on one screen. You must print it for a meaningful review of its contents. The table has been divided into multiple pieces with each piece containing information to help you

assemble a printout of the table. The information for each piece includes: (1) a three line message preceding the tabular data showing by line # and character # the position of the upper left-hand corner of the piece and the position of the piece within the entire table; and (2) a numeric scale following the tabular data displaying the character positions.]

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\*\*\*\*\* This is piece 1. -- It begins at character 1 of table line 1. \*\*\*\*\*  
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Exhaust Emission Standards for Engines Used in Incomplete Otto-Cycle  
Low-Emission Vehicles, Ultra-Low-Emission Vehicles, and  
Super Ultra-Low-Emission Vehicles, and for Diesel  
1...+...10....+...20....+...30....+...40....+...50....+...60....+...70....+..

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\*\*\*\*\* This is piece 2. -- It begins at character 78 of table line 1. \*\*\*\*\*  
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Medium-Duty

78.....+...90.....+....

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\*\*\*\*\* This is piece 3. -- It begins at character 1 of table line 4. \*\*\*\*\*  
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Model Year

1992 [FNE]  
-2001  
2002-2003  
[FNE]  
1992-2003

[FNE,H]  
2004 and

subsequent  
[FNL]  
2004 and

subsequent  
[FNL]  
2007 and  
subsequent  
[FND]  
1992 and

subsequent  
[FNL]  
2007 and  
subsequent  
[FND]  
1...+...10....

\*\*\*\*\*  
\*\*\*\*\* This is piece 4. -- It begins at character 15 of table line 4. \*\*\*\*\*  
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Engines Used in Medium-Duty Low-Emission Vehicles, Ultra-Low-Emission  
Vehicles, and Super Ultra-Low-Emission Vehicles [FNA,F]  
(grams per brake horsepower-hour)

Vehicle Emissions	Carbon	Non-Methane	Oxides		
			of		
Category	Monoxide	NMHC +	Hydrocarbons	Nitrogen	Formaldehyde
[FNB]		NOx			
		[FNC%]			

LEV	14.4	3.5	n/a	n/a	0.050
		[FNK]			
LEV	14.4	3.0	n/a	n/a	0.050
		[FNK]			
ULEV	14.4	2.5	n/a	n/a	0.050
		[FNK]			
ULEV -	14.4	2.5 [FN-	n/a	n/a	0.050
		I, J, K]			
Opt A					
ULEV -	14.4	2.4 [FN-	n/a	n/a	0.050
		I, J, K]			
Opt. Bn/a					
ULEV	15.5	n/a	0.14	0.2	0.050
SULEV	7.2	2.0	n/a	n/a	0.025
		[FNK]			
SULEV	7.7	n/a	0.07	0.1	0.025

15..20....+...30....+...40....+...50....+...60....+...70....+...80....

\*\*\*\*\*  
 \*\*\*\*\* This is piece 5. -- It begins at character 85 of table line 4. \*\*\*\*\*  
 \*\*\*\*\*

Particulates  
 [FND]

0.10 [FNK]

0.10 [FNK]

0.10 [FNK]

0.10 [FNJ, K]

0.10 [FNJ, K]

0.01

0.05 [FNK]

0.005

85..90....+....

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[FNA] This set of standards is optional. Manufacturers of engines used in incomplete medium-duty vehicles or diesel engines used in medium-duty vehicles from 8501-14,000 pounds gross vehicle weight rating may choose to comply with these standards as a alternative to the primary emission standards and test procedures specified in section 1960.1, or [section 1961, Title 13, California Code of Regulations](#). Manufacturers that choose to comply with these optional heavy-duty standards and test procedures shall specify, in the application for certification, an in-use compliance test procedure, as provided in [section 2139\(c\), Title 13, California Code of Regulations](#).

[FNB] "LEV" means low-emission vehicle.

"ULEV" means ultra-low-emission vehicle.

"SULEV" means super ultra-low-emission vehicle.

[FNC] This standard is the sum of the individual non-methane hydrocarbon emissions and oxides of nitrogen emissions. For methanol-fueled engines, non-methane hydrocarbons shall mean organic material hydrocarbon equivalent ( "OMHCE").

[FND] These standards apply only to diesel engines and vehicles .

[FNE] Manufacturers may certify engines used in incomplete medium-duty vehicles or diesel engines used in medium-duty vehicles to these standards to meet the requirements of section 1956.8 (g), Title 13, California Code of Regulations.

[FNF] In-use compliance testing shall be limited to vehicles or engines with fewer than 90,000 miles.

[FNG] [Reserved]

[FNH] For engines certified to the 3.5 grams per brake horsepower-hour (g/bhp-hr) LEV standards, the in-use compliance standard shall be 3.7 g/bhp-hr for the first two model years of introduction. For engines certified to the 2002 and 2003 model year LEV standards, the in-use compliance standard shall be 3.2 g/bhp-hr. For engines certified to the 1992 through 2003 model year ULEV standards, the in-use compliance standard shall be 2.7 g/bhp-hr for the first two model years of introduction. For engines certified to the 1992 and subsequent SULEV standards, the in-use compliance standard shall be 2.2 g/bhp-hr for the first two model years of introduction.

[FNI] Manufacturers have the option of certifying to either option A or B. Manufacturers electing to certify to Option A must demonstrate that the NMHC emissions do not exceed 0.5 g/bhp-hr.

[FNJ] Emissions averaging may be used to meet these standards for diesel engines, using the requirements for participation in averaging, banking and trading programs, as set forth in the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," incorporated by reference in section 1956.8(b), above.

[FNK] Engines of 1998 and subsequent model years may be eligible to generate averaging, banking and trading credits based on these standards according to the requirements of the averaging, banking and trading programs described in the "California Exhaust Emission Standards and Test Procedures for 1985 through 2003 Model Heavy-Duty Diesel Engines and Vehicles" and the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," incorporated by reference in section 1956.8(b), above. [FNL] For 2007 and subsequent model year diesel engines used in medium-duty vehicles, these emission standards are not applicable.

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(3) 2007 and later model year engines subject to (h)(2) have the following Phase-in Options.

(A) Early NOx compliant engines. For model years 2007, 2008, and 2009, a manufacturer may, at their option, certify one or more of their engine families to the combined NOx plus NMHC standard or FEL applicable to model year 2006 engines under section 1956.8(h)(2), in lieu of the separate NOx and NMHC standards or FELs applicable to the 2007 and subsequent model years, specified in section 1956.8(h)(2). Each engine certified under this phase-in option must comply with all other emission requirements applicable to model year 2007 engines. To qualify for this option, a manufacturer must satisfy the U.S.- directed production requirement of certifying no more than 50 percent of engines to the NOx plus NMHC standards or FELs applicable to 2006 engines, as specified in [40 Code of Federal Regulations, part 86, section 86.007- 11\(g\)\(1\)](#), as adopted January 18, 2001. In addition, a manufacturer may reduce the quantity of engines that are required to be phased-in using the early certification credit program specified in [40 Code of Federal Regulations, part 86, section 86.007-11\(g\)\(2\)](#), as adopted January 18, 2001, and the "Blue Sky" engine program specified in [40 Code of Federal Regulations, part 86, section 86.007-11\(g\)\(4\)](#), as adopted January 18, 2001.

(B) Early PM compliant engines. A manufacturer certifying engines to the 2007 and subsequent model year PM standard listed in section 1956.8 (h)(2) (without using credits, as determined in any averaging, banking, or trading program described in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," to comply with the standards) before model year 2007 may reduce the number of engines that are required to meet the 2007 and subsequent model year PM standard listed in section 1956.8(h)(2) in model year

2007, 2008 and/or 2009. To qualify for this option, a manufacturer must satisfy the PM emission requirements pursuant to the methods detailed in [40 Code of Federal Regulations, part 86, section 86.007-11 \(g\)\(2\)\(ii\)](#), as adopted January 18, 2001.

(4) No crankcase emissions shall be discharged directly into the ambient atmosphere from any new 2007 or later model year diesel heavy-duty diesel engine, with the following exception: heavy-duty diesel engines equipped with turbochargers, pumps, blowers, or superchargers for air induction may discharge crankcase emissions to the ambient atmosphere if the emissions are added to the exhaust emissions (either physically or mathematically) during all emission testing. Manufacturers taking advantage of this exception must manufacture the engines so that all crankcase emission can be routed into a dilution tunnel (or other sampling system approved in advance by the Executive Officer), and must account for deterioration in crankcase emissions when determining exhaust deterioration factors. For the purpose of section 1956.8(h)(2), crankcase emissions that are routed to the exhaust upstream of exhaust aftertreatment during all operation are not considered to be "discharged directly into the ambient atmosphere."

<General Materials (GM) - References, Annotations, or Tables>

Note: Authority cited: [Sections 39600, 39601, 43013, 43018, 43100, 43101, 43104, 43105](#) and [43806, Health and Safety Code](#); and [Section 28114, Vehicle Code](#). Reference: [Sections 39002, 39003, 39500, 43000, 43013, 43018, 43100, 43101, 43102, 43104, 43106, 43202, 43204, 43206, 43210, 43211, 43212, 43213](#) and [43806, Health and Safety Code](#); and [Section 28114, Vehicle Code](#).

#### HISTORY

1. New section filed 5-15-85; effective thirtieth day thereafter (Register 85, No. 20) .

2. Amendment of subsections (a) and (b) filed 9-15-86; effective thirtieth day thereafter (Register 86, No. 38) .

3. Relettering and amendment of former subsection (c) to (e), relettering of former subsection (d) to (f) and new subsections (c) and (d) filed 9-15-86; effective thirtieth day thereafter (Register 86, No. 38).

4. Editorial correction of subsection (a) printing error (Register 87, No. 50).

5. Amendment of subsection (d) filed 6-6-88; operative 6-6-88 pursuant to [Government Code section 11346.2\(d\)](#) (Register 88, No. 25).

6. Amendment filed 2-21-90; operative 3-23-90 (Register 90, No. 8).

7. Amendment filed 6-14-90; effective 7-14-90 (Register 90, No. 33).

8. Amendment of subsections (b), (c), (d) and (g) filed 8-2- 91; operative 9-2-91 (Register 91, No. 49).

9. Amendment of subsections (a), (b), (d) and (g) and new subsection (h) filed 8-30-91; operative 9-30-91 (Register 92, No. 14).

10. Amendment of subsections (b) and (d) filed 12-9-92; operative 1-1-93 (Register 92, No. 50).

11. Amendment of subsection (d) filed 7-20-93; operative 8-19-93 (Register 93, No. 30).

12. Amendment of subsection (b) filed 12-1-93; operative 1-1-95 (Register 93, No. 49).

13. Amendment of (a)(1) table and notes, subsection (b) and Note filed 5-12-94; operative 6-13-94 (Register 94, No. 19).

14. Amendment of subsections (b) and (d) filed 4-13-95; operative 4-13-95 pursuant to [Government Code section 11343.4\(d\)](#) (Register 95, No. 15).

15. Amendment of subsections (a)(1), (b), (c)(1) and (d) filed 12-14-95; operative 1-13-96 (Register 95, No. 50).

16. Amendment filed 9-23-96; operative 10-23-96 (Register 96, No. 39).

17. Amendment of subsection (b) filed 7-25-97; operative 8-24-97 (Register 97, No. 30).

18. Amendment filed 4-15-99; operative 5-15-99 (Register 99, No. 16).

19. Amendment filed 1-23-2001; operative 1-23-2001 pursuant to [Government Code section 11343.4\(c\)](#) (Register 2001, No. 4).

20. Amendment of section andNotefiled 4-30-2001; operative 5-30-2001 (Register 2001, No. 18).

21. Amendment of subsection (b) filed 7-25-2001; operative 7-25-2001 pursuant to [Government Code section 11343.4](#) (Register 2001, No. 30).

22. Redesignation and amendment of subsection (a)(2) as subsection (a)(2)(A), new subsections (a)(2)(B) and (a)(5), amendment of subsections (b) and (h), new subsections (h)(3)-(4) and amendment of Notefiled 10-18-2002; operative 11-17-2002 (Register 2002, No. 42).

23. Change without regulatory effect amending subsections (a)(2)(B)(i)-(ii) and (h)(3) filed 4-16-2003 pursuant to [section 100, title 1, California Code of Regulations](#) (Register 2003, No. 16).

24. Amendment of section andNotefiled 10-16-2003; operative 11-15-2003 (Register 2003, No. 42).

25. Amendment of subsections (b), (c)(1)(B), (d) and (h)(2) footnotes J-K filed 11-4-2003; operative 12-4-2003 (Register 2003, No. 45).

13 CA ADC § 1956.8  
13 CCR s 1956.8  
Cal. Admin. Code tit. 13, s 1956.8

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13 CA ADC s 1956.8  
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